



Whistler Design Preview

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Whistler Application Compatibility

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Agenda

- **What Makes an Application Incompatible?**
- **How Compatibility is Improved in Whistler**
- **How We Test LOB Applications**
- **Q&A**

What Makes an Application Incompatible?

Legacy Issues

- **Changes in the Operating System**
- **Application Stability Issues**
- **Platform Differences**
- **Other issues**

Application Compatibility

- We're really talking about application *incompatibilities*
- What makes an application incompatible?
 - The application refuses to install on the new OS
 - The operating system changed functionality
 - A change in the operating system has exposed a bug in the application

Application-Specific Issues

**The Most Common
Compatibility Concerns**

Setup and Installation (1)

- **Issue: - Application won't allow itself to install on OS versions it was not originally intended for**
- **Most common reason: Improper Version Checking**
 - **Applications use equality operators rather than conditional operators**
 - **Most common problem found in our testing**

Setup and Installation (2)

- **Issue: Each version of Windows is made of many functional components**
 - **Don't assume that one component ensures presence of another**
 - **Don't assume that components are platform-specific**
 - **Don't assume components are in hard coded paths**
- **Solution: Check for the needed Windows functional component**

Security Issues

- **Issue: Most apps require Admin rights to install**
- **Any user should be able to install an application just for that user**
 - **Normal “User” can’t write to “Program files”**
 - **Normal “User” can’t write to HKLM**
- **Solution: Consider accepting Power User category for**

Heap Management

- Issue: Whistler has a different heap manager than most applications were developed using
 - Also included in Windows NT 4 SP4 & Windows 2000
- No changes made to API or documented heap operation
- Exposes bugs in applications
- Solution: Tools are available that allow you to revert back to the NT 4 heap manager

Hard Coded Paths

- **Issue: Folders have moved around**
 - **Win9x**
 \My Documents
 - **Windows NT 4**
 %windir%\profiles\BrandoM\personal
 - **Windows 2000 & Whistler**
 \Documents and Settings
 \BrandoM\My Documents
- **Solution: Use SHGetFolderPath to get the proper path**

Long File and Printer Names

- Issue: File, folder and printer names are longer on Windows 2000
 - Average path length has increased significantly
- Has exposed bugs in how long names are implemented in applications
- Solution: Check buffer lengths for pathnames in application source code, and increase

Large Drives

- Issue: Hard drives in use today may have more than 4GB for free space
- 32-bit values used for returning available hard drive space numbers are insufficient
- Solution: Use **GetDiskFreeSpaceEx**, which provides the **ULARGE_INTEGER**
- If you use **GetDiskFreeSpace** you need to use **ULARGE INTEGERS**

Improving Whistler Compatibility

**Continuing to Raise the
Compatibility Bar**

Compatibility with Whistler

- Application compatibility is a major goal
- SteveB: “An OS is defined by the applications that run on it.”
- Must extend & improve the compatibility work done in Windows 2000

Strategies Used During Windows 2000 cycle

- **Broad sampling of shrink-wrapped applications were tested daily, weekly**
- **Worked closely with ISVs to resolve issues**
- **Developed technology to allow existing applications to work on the new OS**
- **Client, Server, International**

Lessons Learned During Windows 2000 cycle

- **ISV waiting on customer demand, customers waiting for apps to work**
- **Most ISVs unwilling to update existing apps to work on a new OS**
 - **Newer or latest version takes priority**
 - **Want to avoid the cost of releasing a patch for older versions**
- **Microsoft must drive the NT**

Requirements for Fixes

- **Fixes must work on API level, so that they are re-usable across multiple applications**
- **Be able to associate multiple fixes with a particular application**
- **Updates and distribution should be easy for consumers**

The Solution

- **Create an OS mechanism that allows different fixes to be applied to applications as they are loaded**
 - **Fixes for application incompatibilities are now modularized**
 - **Fixes are external of OS code base**
 - **Fixes are re-usable and can be associated with new applications if needed**

Delivery Mechanism

- **Windows Update**
 - **Compact size of fixes**
 - **Urgent fixes can be published quickly**
 - **Ability to group fixes by the application markets they affect**
- **Tools will be made available for associating existing fixes with applications we have not tested**

ISVs and Customers

- **ISVs pleased with the current situation, and cooperate with us to produce application fixes for their older apps**
 - **Customers satisfied with old version can continue to use it**
 - **Support worries gone**
 - **Cost of publishing a patch are eliminated**
- **Customers can use their favorite apps**
 - **“It just works”**

Demo

Application Fix Example

LOB Application Testing (APPSWAT)

The 5-Day Plan for Testing

App SWAT Team

- Focus on testing Line of Business applications
- MCS relationship in place
 - Team Lead determines focus, methodology
 - Dev team member for debugging
 - Other team members set up machines
- Leverage customer MIS developers where possible
- Bring in users to test their

Plans, Forms, Reports

- **Specific 5-day approach**
- **Reports for individual applications**
- **Lab setup instructions**
- **Bugs filed in RAID**
- **Status Reports daily**
- **Summary Report to AppSWAT Manager**

Methodology (1)

- **Typical test matrix**
 - **Clean Installation of Whistler**
 - **Upgrade Scenarios from older versions of Windows**
- **May have 1-3 machines for each scenario**
- **Company contact works side-by-side through the testing**

Methodology (2)

- **Create record of applications tested**
 - **Need to know original platform for upgrade scenarios**
 - **Need to know language used to write app**
 - **Need to document any plans in place to upgrade applications**
 - **Need to document matrix of results across scenarios**
- **Adjust 5-day plan to suit the situation**

Day 1

- **Introductory meeting**
- **Inventory Lab equipment**
- **Identify Roles and Owners**
- **Client-side testing commences**
 - **Depth testing**
 - **Breadth testing**
- **Daily results meeting**
- **Leave site to RAS & report bugs**

Day 2

- **Continue Depth and Breadth Testing on Client Side**
- **Daily Results Meeting**
- **File bugs, etc.**

Day 3

- **Complete Client-side testing**
- **Begin Server upgrade testing**
- **Test clients against deployed server**
- **Daily Results meeting**
- **File bugs, etc.**

Day 4

- **Continue Server Upgrade testing**
- **Test clean installations of server**
- **Daily results meeting**
- **File Bugs, etc**

Day 5

- **Wrap up remaining issues**
- **Final test results meeting with customer**
- **File bugs, etc.**
- **Leave site**

Bugs Reported

- Tested 15-40 apps per site
- 158 bugs reported during Windows 2000 cycle
 - 96.8% closed (25% new bugs -- fixed)
 - 1.2% Resolved
 - 2% Open
- Many issues common across LOB applications
- Bug rates dropped as builds improved

Lessons Learned (1)

- **Get a firm commitment of time & resources from the customer**
- **Have adequate and consistent hardware**
- **Request a full-time liaison from the customer (usually Lab Manager)**
- **Involve users in the testing**
- **Determine whether server-side applications can be duplicated in a lab**

Lessons Learned (2)

- MCS contact needs to be available to facilitate requests for assistance
- Be wary of reduced customer resources due to Y2K testing in progress
 - May not have their undivided attention
- Ensure that SWAT team will have Internet access from testing area
- Upgrade laptops, if available, as well as desktop and server

Lessons Learned (3)

- **Include multi-language version testing if possible and appropriate**
- **Have a list of Whistler resources available to hand out to MIS/IT onsite**
- **Use RIS, SysPrep, and other app deployment techniques where possible**

Call To Action

- **Let us know what applications are important to you!**
- **Application Compatibility is the outcome of testing applications early and often**
- **Encourage your development groups to start testing now even if they're not sure when you'll deploy**

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